

Notes on the narrow-leaved Ironbarks (Myrtaceae: *Eucalyptus* subseries *Subglaucae*)

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Summary

Bean, A.R. (2005). Notes on the narrow-leaved ironbarks (Myrtaceae: *Eucalyptus* subseries *Subglaucae*). *Austrobaileya* 7(1): 111–120. The taxonomic history of the narrow-leaved ironbarks is discussed, as are the problems associated with the taxonomic delimitation of its member species, particularly *E. crebra* sens. lat. and *E. drepanophylla* sens. lat. *Eucalyptus elegans* sp. nov. is described and illustrated. The identity of the poorly known *E. bowmanii* Benth. is discussed, and the circumscription of *E. tholiformis* is expanded.

Key Words: Myrtaceae, ironbarks, eucalypt taxonomy, *Eucalyptus crebra*, *Eucalyptus drepanophylla*, *Eucalyptus elegans*, *Eucalyptus tholiformis*, Queensland flora, New South Wales flora

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Introduction

Ironbark is the common name given to a group of *Eucalyptus* species with very hard, thick, fissured grey to black bark. This common name was first applied by the early colonists of New South Wales and Queensland and it must have been in common parlance by the 1840's, as the term was frequently used by Leichhardt (1847) to describe eucalypt trees he saw with these features.

Ironbark is perhaps the most distinctive of all bark types in *Eucalyptus* sens. lat., and more than any other bark type, it reflects taxonomic affinity. In other words, all ironbark species are related to each other, whereas species with 'gum', 'box' or 'stringy' bark may belong to more than one taxonomic section or even subgenus.

Pryor & Johnson (1971) placed most ironbarks into two informal series, viz. *E. series 'Pruinosae'* and *E. series 'Paniculatae'*. Another series, *E. series 'Melliodorae'*, contained the two unusual ironbarks *E. sideroxylon* and *E. tricarpa*.

Brooker (1985) showed that the informal name '*Pruinosae*' is inappropriate, as *E. pruinosa* Schauer is box-barked, whereas all

other species in the series are ironbarks. He proposed the series be renamed as informal *E. series 'Crebrae'*. More recently, the informal classification of Pryor & Johnson (1971) has been replaced by formal names (i.e. using the rules of the ICBN) and the ironbark series under discussion became *E. series Siderophloiae* Blakely. The eucalypt volume of the Flora of Australia (Chippendale 1988) listed 12 species belonging to *E. series Siderophloiae*. Since then, 12 additional ironbark species belonging to that series have been described by Brooker & Bean (1987), Johnson & Hill (1990), Hill & Johnson (1991), Bean & Brooker (1994), Hill (1997a) and Hill (1997b).

Brooker (2000) nominated four areas of "poor resolution" within *Eucalyptus*, meaning species groups poorly understood taxonomically. The *E. ser. Siderophloiae* ironbark group was one of these. Brooker (*loc. cit.*) maintained that *E. ser. Siderophloiae* could be divided into two subseries; *E. subser. Subglaucae* (the subject of this paper) and *E. subser. Jugatae* Blakely. The latter is a small but complex group of taxa characterised by sessile opposite leaves retained in the crown of mature trees. Brooker listed 20 species for the *E. subser. Subglaucae*, excluding *E. drepanophylla* (as it was listed as a synonym of *E. crebra* in Brooker & Kleinig (1994)) and *E. farinosa* (perhaps merely by omission).

Problems of recognising taxa

By the end of the 20th century, nearly all of the distinct ironbark taxa had been formally described, leaving the morass of *Eucalyptus crebra* and *E. drepanophylla*, both very widespread and very variable in their circumscription.

It was intended (by A.R. Bean & M.W. McDonald) to elucidate the taxonomy of these species using a combination of herbarium studies, field studies throughout their range, seedling trials and allozyme analysis. Initial herbarium sorting of taxa was hampered by the incomplete nature of most specimens which lacked either mature buds or fruits or both. Very few specimens included juvenile leaves. This made it difficult to compare and classify specimens.

Field studies did reveal a number of seemingly distinct taxa from various parts of Queensland and New South Wales, by allowing access to a more complete range of fertile material and juvenile leaf morphology. On that basis, tentative taxa were erected and given phrase names e.g. *Eucalyptus* sp. (Stannary Hills G.W. Althofer 402), and specimens in the Queensland Herbarium were thus annotated. However, curation of the herbarium material remained very difficult, as there were often no characters that could consistently separate taxa.

Bean and McDonald collected seed of nearly all of the tentative taxa identified from the field studies for later allozyme analysis. For each provenance, the seed collection was derived from five parent trees in close proximity. For the tentative taxa perceived to be widespread, up to four provenances were collected, and for *E. crebra* and *E. drepanophylla*, seed collections from their type localities were included. The allozyme study was undertaken (see Achour 2003) and the results showed that “*Siderophloeae* taxa were characterised by high levels of allozyme variation and relatively similar allelic frequencies. This is reflected in the lack of bootstrap support for the clustering of most taxa ...”.

Seedling morphology has proved to be taxonomically very useful in many groups of eucalypts. Hence a comprehensive ironbark seedling trial was undertaken by the present author. Seedlings of all of the tentative taxa, as well as most of the

already described species of the subseries were raised to a height of 30–40 cm, and scored for a variety of characters. While the seedling characteristics of the established species (sometimes quite diagnostic) were confirmed, there was little differentiation between the tentative taxa, and the variation within taxa was considerable. None of the tentative taxa (except *E. elegans*, see below) could be distinguished on the basis of seedling morphology.

Further field examinations, away from “core areas” of the tentative taxa showed that most intergraded extensively with the geographically adjacent taxon, to such an extent that additional taxa are impossible to define and diagnose.

A similarly difficult taxonomic situation exists in the Red Gum group (*Eucalyptus* subser. *Erythroxyla* Blakely). Brooker & Slee (2000) documented intergrades between several pair combinations of long established species, and they highlighted the difficulties of identifying and classifying these intergrading forms.

Holman (2002) has studied the apparent intergradation between the two ironbark species, *Eucalyptus whitei* (of *E.* subser. *Subglaucae*) and *E. melanophloia* (of *E.* subser. *Jugatae*). He has shown that there is almost no genetic difference between them. These taxa intergrade over a vast area of central Queensland, forming a cline that “represents a single cohesion species and a single evolutionary lineage”. This research refutes having these two species in different subseries.

Because the end points of the *whitei-melanophloia* cline are so morphologically dissimilar, the intergrades are very obvious. In the case of the tentative taxa considered in this paper, there are probably similar patterns of clinal variation, but as the endpoints of the clines are morphologically quite similar, the intergrades are more cryptic.

A combination of these factors has forced me to abandon nearly all of these tentative new taxa, and revert to a broadly circumscribed *E. crebra* and *E. drepanophylla*. While most of the intergrading forms are referable to these two species, there are several other species involved. Intergrades have been observed

between the following species pairs e.g. *E. drepanophylla* and *E. xanthoclada*, *E. whitei* and *E. crebra*, *E. quadricostata* and *E. xanthoclada*, *E. cullenii* and *E. crebra*, *E. drepanophylla* and *E. granitica*, *E. atrata* and *E. crebra*.

Practicality and utility requires that the existing species continue to be recognised, but we need to be aware that some populations cannot be identified with certainty.

One new species (*E. elegans*) is described here. Uniquely, it often grows in a mosaic pattern with *E. crebra* without any intergradation or hybridisation, and is considered sufficiently distinct by virtue of its exceptionally small buds and fruits, linear juvenile leaves, and linear to narrowly lanceolate adult leaves. The poorly known *E. bowmanii* Benth. is discussed, and its identity is reaffirmed. The circumscription of *E. tholiformis* has been expanded.

A key to the taxa comprising *E.* subseries *Subglaucae* is presented. Of necessity, it uses some characters observable only in the field. It must be pointed out that for the narrow-leaved ironbarks, imperfect herbarium specimens often cannot be identified.

Taxonomy

Eucalyptus subser. *Subglaucae* Blakely, *Key Eucalypts* 59, 250 (1934). **Type:** *E. siderophloia* Benth.

Lignotuberous trees, rarely reduced to mallee form. Bark on trunk rough, grey to black, longitudinally furrowed, usually very hard and unyielding, impregnated with kino, comprising many very small to quite large lamellae; commonly referred to as 'ironbark'. Rough bark persistent on trunk and at least on the major branches, and often persistent throughout. All parts glabrous. Cotyledons reniform. Seedling and juvenile stems more or less terete; seedling leaves petiolate, opposite for 4–9 pairs; juvenile leaves petiolate to subsessile, alternate. Adult stems more or less terete, pith glands absent; adult leaves glabrous, petiolate, alternate, concolorous, margins entire; lateral veins at 45–60 degrees to midrib; venation very densely reticulate; intramarginal vein close to margin or sometimes confluent with it; oil glands

numerous to occasional, circular, island or intersectional, sometimes absent; petioles terete. Conflorescences compound, pseudo-terminal and in upper leaf axils, unit inflorescences umbellate, 3–7-flowered, peduncles erect, pedicels present. Buds smooth. Outer operculum shed early in bud development. Stamens annular, in several whorls, white, all fertile, irregularly flexed, anthers adnate, basifixed, globoid, opening by lateral non-confluent slits. Stigma blunt. Ovary 3–5 locular. Ovules in four longitudinal rows on placenta. Fruits woody, with narrow staminophore, disc descending or rarely ascending, valve tips not connate; peduncles erect, pedicels present. Seeds ellipsoidal, somewhat flattened, grey-black, shallowly reticulate, not winged, hilum ventral. Fertile seeds much larger and darker than chaff.

Eucalyptus elegans A.R.Bean sp. nov. affinis

E. crebra autem foliis juvenibus linearibus 2.5–6 mm latis, foliis adultis pro parte maxima linearibus, alabastris maturis 3–4 mm longis, fructibus 2.6–3.9 mm longis differt. **Typus:** Queensland. DARLING DOWNS DISTRICT: north end of Bendidee National Park, NE of Goondiwindi, 27 November 1999, *A.R. Bean 15864* (holo: BRI; iso: CANB, NSW).

E. sp. (Chinchilla L. Pedley 4022) in Henderson (2002)

E. sp. (Inglewood P. Grimshaw+ PG846) in Henderson (2002)

E. sp. (Gilgandra D.J. Carr+ 352) in Henderson (2002)

Tree 8–28 m high, rough bark persistent throughout. Seedling leaves opposite for 3–4 pairs, narrowly lanceolate, 55–61 × 8–11 mm, discolourous, not glaucous, apex acute or obtuse, margins entire, petioles 3–4 mm long. Juvenile leaves linear, 45–83 × 2.5–6 mm, 12–22 times longer than wide, discolourous, apex acute, base cuneate; petioles 2–4.5 mm long. Adult leaves with petioles 9–14 mm long; lamina narrowly lanceolate to linear, or falcate, 75–165 × 7–11 mm, 7–20 times longer than wide, apex acute to attenuate, base cuneate, green to bluish-grey, dull. Vein network dense, oil glands appearing as isolated islands within the areoles.

Intramarginal vein present, single, close to margin. Inflorescences largely terminal, compound, the lower umbels axillary. Unit umbels 3–7-flowered; peduncles terete, 2.5–7 mm long, 0.6–0.8 mm wide; pedicels 2–3.5 mm long; buds obovoid to ellipsoid, at maturity 3–4 mm long, 2.2–2.8 mm wide; hypanthium wrinkled when dry, but not ribbed. Operculum conical to hemispherical-umbonate, 1.1–2 mm long, 1.8–2 mm wide, not ribbed, shorter than hypanthium. Stamens white, outer whorls *c.* 2.5 mm long and inner whorls *c.* 1.3 mm long. Style 1–1.5 mm long at anthesis, stigma blunt or dilated. Fruiting peduncles 1.5–6 mm long, 0.7–0.9 mm wide; pedicels 1–3 mm long; fruits cupular, circular in cross-section, not or very faintly ribbed, 2.5–4 mm long, 2.7–4 mm wide, staminophore 0.2–0.3 mm wide, disc obliquely to vertically descending; valves 3–4, valve tips exerted or at rim level. Seeds grey to black, *c.* 0.8 mm long, flattened, surface +/- reticulate. **Fig. 1.**

Selected specimens examined: **Queensland.** BURNETT DISTRICT: 2 km SW of 'Rockybar', Mar 1990, *Bean 1433* (BRI); 30 miles [50 km] SW of Mundubbera, Sep 1969, *Pedley 2892* (BRI). DARLING DOWNS DISTRICT: Bracker State Forest, S of Inglewood, Dec 1990, *Bean 2736* (BRI, CANB); S of Jackson, Sep 1948, *Blake 18224* (BRI); Barakula S.F., Apr 1975, *Brooker B4782* (BRI, CANB); 1.5 km E on road 4.9 km N of Barakula Forest Office, Sep 1974, *Chippendale GC1079 & Brennan* (BRI, CANB); Winfield Road, Weimbilla, N of Tara, Sep 1998, *Foley s.n.* (BRI); Bracker S.F. 81, 2 km N of Brush Creek, 20.9 km S of Inglewood, Jul 1994, *Grimshaw PG846 & Taylor* (BRI); 5.8 km N of Miles, Jan 2000, *McDonald KRM245* (BRI); 23 miles [38.3 km] N of Chinchilla, Nov 1968, *Pedley 2782* (BRI); near Cecil Plains, Dec 1969, *Pedley 3073* (BRI); 15 km WNW of Chinchilla, Dec 1972, *Pedley 4022* (BRI); 23.2 km along Burncluth road, Barakula S.F., Oct 1993, *Slee 3441* (BRI); *c.* 13.1 miles [21.1 km] W of Condamine River on Moonie Highway, May 1961, *Smith 11321* (BRI); Bybera, via Inglewood, May 1934, *White 10059* (BRI). **New South Wales.** 28 miles [45 km] S of Gilgandra, Oct 1976, *Carr & Carr 352* (AD, BRI, CANB, MEL, NSW); Pilliga Scrub, Oct 1976, *Carr & Carr s.n.* (BRI, CANB, MEL, NSW); Pilliga Scrub, 25 km E of Baradine, Dec 1973, *Streimann 703* (BRI, CANB).

Distribution and habitat: *E. elegans* extends from Eidsvold to Inglewood in Queensland, and again in the Narrabri – Gilgandra area of New South Wales (**Map 1**). It grows on flat or gently undulating ground with sandy soil near the surface. Common associates are *Callitris glaucophylla* and *Casuarina luehmannii*.

Phenology: Flowers are recorded from June to December; fruits may be found all year round.

Notes: *Eucalyptus elegans* is distinguished by its tall habit, straight trunk, linear juvenile leaves, mostly linear adult leaves, and very small buds and fruits. In the Chinchilla and Inglewood areas, it often grows in close proximity to *E. crebra*, but without intergradation, with *E. crebra* favouring the more hilly terrain.

Conservation status: The species is common and widespread. No conservation coding is required.

Etymology: From the Latin *elegans* meaning elegant, attractive. This is a reference to the form of the tree and the appearance of the crown.

***Eucalyptus bowmanii* Benth.**

Bentham (1867) described *E. bowmanii* on the basis of a single specimen collected by Edward Bowman. This specimen, although in flower, is deficient in many ways. All of the opercula have been shed from the flowers, and none remains with the specimen. There are just two inflorescences, no fruits, and only five leaves. There is no collecting locality, other than 'Queensland', and there is no indication of bark type.

Because of the incomplete nature of the specimen and lack of location and other information, the identity of *E. bowmanii* has long been in doubt. Maiden (1909) considered it to be a doubtful species, either conspecific with *E. hemiphloia* (= *E. moluccana*), or closely related to it. Blakely (1934) accepted it as a distinct species, placing it alongside *E. drepanophylla*. Pryor and Johnson (1971) regarded it as a synonym of *E. fibrosa* subsp. *fibrosa*. G.M. Chippendale examined the type specimen in 1973 and determined it as *E. fibrosa* subsp. *fibrosa*.

The present author has also recently examined the type of *E. bowmanii*, and concurs that *E. bowmanii* is conspecific with *E. fibrosa* subsp. *fibrosa*. A brief description, gleaned from the type specimen, is given here:

Adult leaves lanceolate, 23–34 mm wide, lateral veins at around 45 degrees to the midrib,

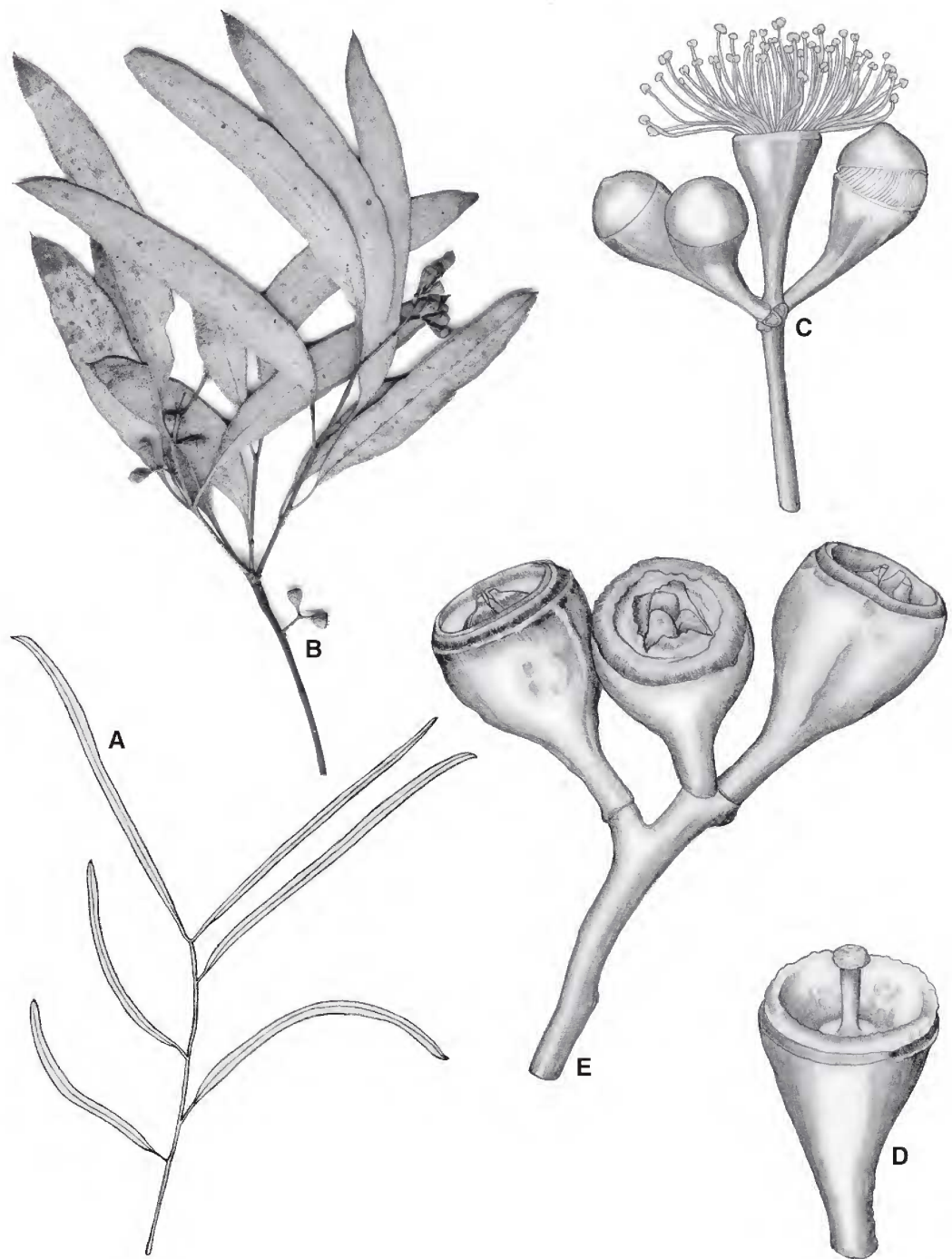


Fig. 1. *Eucalyptus elegans*. A. juvenile leaves $\times 0.8$. B. branchlet bearing axillary bud clusters and fruits $\times 0.8$. C. umbel of mature buds (some buds have been shed) $\times 4$. D. hypanthium (at anthesis, stamens removed) showing staminophore and style $\times 8$. G. mature fruits $\times 8$. A from *Bean 16658* (BRI); B-E from *Bean 15864* (BRI). Del. W. Smith.

intramarginal vein *c.* 1.5 mm from margin, petioles 18–23 mm long. Inflorescences axillary, 7-flowered; peduncles *c.* 14 mm long, *c.* 3 mm wide at apex, angular; pedicels indistinct, thick, angular; floral hypanthia (including pedicel) narrowly obconic, 7–8 mm long, 4–4.6 mm wide at distal end; staminophore *c.* 0.5 mm wide; stamens white; anthers adnate, basifixed.

The basifixed adnate anthers confirm its placement in *E.* sect. *Adnataria*. The two axillary inflorescences present on the specimen would suggest otherwise, as species in this section are noted for their terminal inflorescences, but they can and do have some axillary umbels as well. The type of *E. bowmanii* appears to coincide with the form of *E. fibrosa* subsp. *fibrosa* that grows around Glen Geddes and Marlborough, north of Rockhampton. The recent collections of *Batianoff 9812232 et al.*, *Anderson s.n.*, and *Batianoff 91081 & Robins*, (all held at BRI), match the type almost perfectly.

Eucalyptus tholiformis A.R.Bean & Brooker, *Austrobaileya* 4(2): 187 (1994). **Type:** Queensland. LEICHHARDT DISTRICT: Salvator Rosa National Park, on ridge east of the Sentinel, 18 May 1986, *A.R. Bean 444* (holo: BRI; iso: BRI, MEL).

E. sp. (Rewan H.A.Kerswell 1) in Henderson (2002)

Selected specimens examined: Queensland. LEICHHARDT DISTRICT: 19.8 km from Goonyella turnoff towards Clermont, Aug 1986, *Bean 504* (BRI); Nathan Gorge, Oct 1989, *Bean 1138* (BRI); Lookout track, S.F. 236, SW of Blackwater, Nov 2002, *Bean 19571*

(BRI); ‘Alice Wells’ on northern boundary of Mt Playfair Station, Aug 1977, *Blaxell 1448 & Armstrong* (BRI, NSW); near Yoothapinna Holding NW of Injune, Apr 1975, *Brooker 4856* (BRI, CANB); 12.5 km from Mantuan Downs turn-off towards Springsure, Oct 1987, *Brooker 9781* (BRI); 83.7 km W of Springsure on Tambo road, Aug 1984, *Hill 1196 et al.* (BRI, CANB, DNA, MEL, NSW, PERTH); SE Boundary of Rewan Holding, Portion 3 Wyseby, Apr 1987, *Kerswell 1* (BRI); Expedition Range, 27 km ESE of Rolleston township, Aug 1961, *Lazarides & Story 17* (BRI, CANB). SOUTH KENNEDY DISTRICT: 69 km from Alpha towards Tambo, Dec 1988, *Hill 3607 & Stanberg* (BRI, CANB, NSW). MARANOA DISTRICT: road to West Branch Camp, Mt Moffatt N.P., Dec 1997, *Bean 12845* (BRI, CANB).

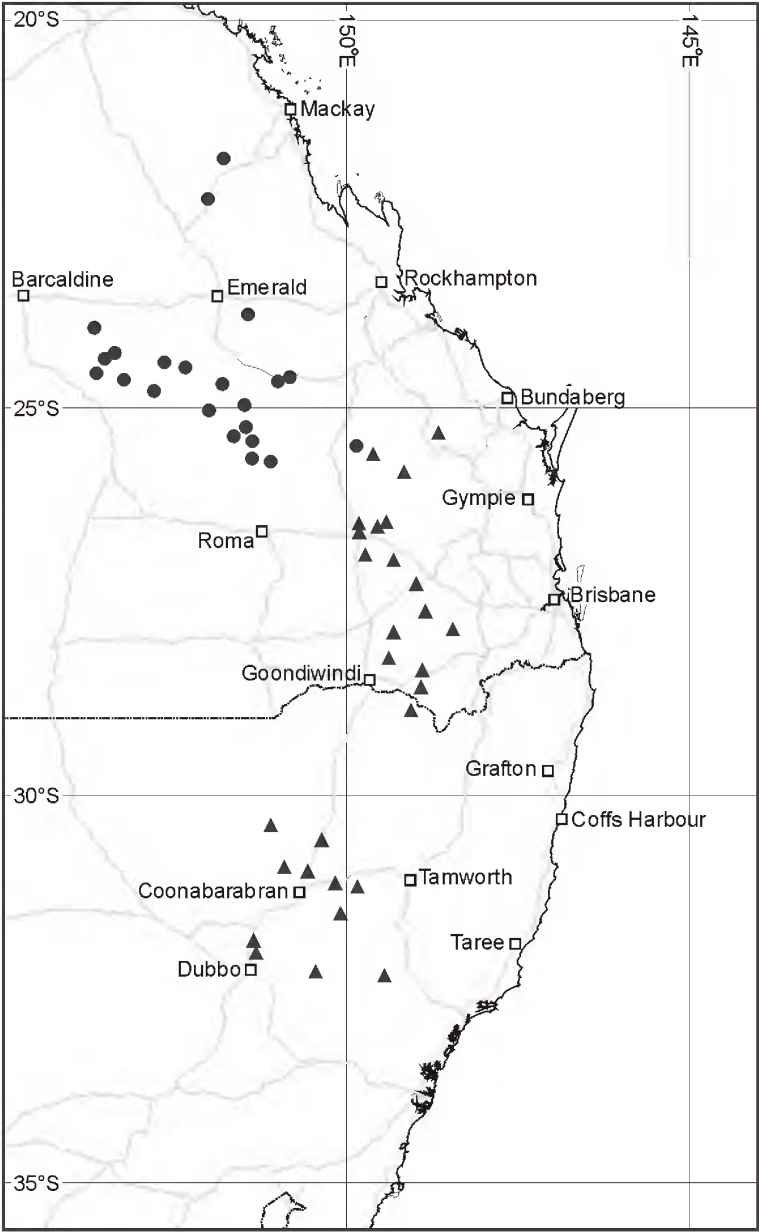
Notes: The circumscription of this species has been expanded to include populations with a lesser amount of smooth bark on the upper branches than at the type locality, and fruits with a level or descending disc. These populations were previously included under *E.* sp. ‘Rewan’. The distribution of *E. tholiformis* is hence extended considerably to the east (**Map 1**). All of these forms are united by the juvenile leaves that are consistently broadly ovate, and 55–95 × 25–50 mm.

Eucalyptus crebra F.Muell. and **Eucalyptus drepanophylla** Benth.

These two species are at the heart of the taxonomic problems in the ironbarks, and specimens from some locations e.g. Nebo, Marlborough, are difficult to assign. However, in other areas (e.g. Pentland, Clairview) they co-occur without intergradation. The main distinguishing characters are given in the table below.

Table 1. Morphological comparison of *Eucalyptus crebra* & *E. drepanophylla*

Character	<i>E. crebra</i>	<i>E. drepanophylla</i>
junction of operculum and hypanthium (immature buds)	no constriction	distinct constriction, sometimes referred to as egg-in-eggcup
rim of fruit (comprising staminophore and part of disc)	0.4–0.8 mm wide	0.7–1.2 mm wide
juvenile leaves	linear to narrowly lanceolate, grey to blue-grey, not glossy	lanceolate, often pale lime-green, sometimes +/- glossy



Map 1. Distribution of *Eucalyptus tholiformis* ● and *E. elegans* ▲.

The traditional distinctions made between these species, i.e. larger adult leaves, buds and fruits for *E. drepanophylla*, do not hold,

although *E. drepanophylla*, on average, has broader adult leaves than *E. crebra*.

Key to the narrow-leaved ironbarks (*Eucalyptus* subser. *Subglaucæ*)

- 1 Buds and fruits with 4 obvious longitudinal ribs 2
Buds and fruits with 1–2 faint ribs, or ribs absent 3
- 2 Adult leaves ovate to orbicular, 3–6 cm wide; branchlets pruinose; pedicels 3–5 mm long ***E. farinosa***
Adult leaves lanceolate, 1.5–2.2 cm wide; branchlets not pruinose; pedicels 5–7 mm long ***E. quadricostata***
- 3 Apex of some or all adult leaves obtuse or retuse 4
Apex of all adult leaves acute to acuminate 5
- 4 Leaves lemon scented; fruits 5–6.5 mm long, pedicels 4–6 mm long ***E. staigeriana***
Leaves not lemon scented; fruits 3.5–5.5 mm long, pedicels 0–2 mm long ***E. jensenii***
- 5 Inflorescences predominantly simple, axillary ***E. rhombica***
Inflorescences predominantly compound, terminal 6
- 6 Juvenile leaves broadly-ovate to orbicular (<2.5 times longer than wide) 7
Juvenile leaves more than 2.5 times longer than wide 10
- 7 Juvenile leaves 2.5–5 cm wide 8
Juvenile leaves 5–12 cm wide 9
- 8 Outer branches smooth; adult leaves 15–30 mm wide ***E. tholiformis***
Bark rough throughout; adult leaves 10–20 mm wide ***E. fracta***
- 9 Buds and branchlets pruinose; fruits 6–8 mm long; umbels 7–11 flowered
..... ***E. fibrosa* subsp. *nubila***
Buds and branchlets not pruinose; fruits 7–12 mm long; umbels 5–9 flowered
..... ***E. fibrosa* subsp. *fibrosa***
- 10 Outer branches (up to 6 cm diameter) conspicuously smooth barked 11
Smooth bark absent or confined to branches <2.5 cm diameter 13
- 11 Branches 6–12 cm diameter smooth-barked ***E. decorticans***
Branches 6–12 cm diameter rough-barked 12
- 12 Juvenile leaves green, lanceolate, 1.5–2.5 cm wide ***E. taurina***
Juvenile leaves grey-green, linear, 0.8–1.3 cm wide ***E. beaniana***
- 13 Immature buds egg-in-eggcup 14
Immature buds without any constriction 16
- 14 Juvenile leaves glaucous ***E. paedoglaucæ***
Juvenile leaves green to grey-green, not glaucous 15

- 15 Fruits large, 5–8 × 5–8 mm; mature buds egg-in-eggcup **E. xanthoclada**
 Fruits small, 4–6 × 4–5 mm; mature buds without constriction **E. drepanophylla**
- 16 Juvenile leaves linear to narrowly lanceolate (7–20 times longer than wide) 17
 Juvenile leaves lanceolate to ovate (2.5–7 times longer than wide) 20
- 17 Fruiting disc broad and convex **E. cullenii**
 Fruiting disc narrow, descending 18
- 18 Adult leaves lacking intramarginal vein **E. exilipes**
 Adult leaves with intramarginal vein 19
- 19 Juvenile leaves 2.5–6 mm wide; fruits 2.5–4 mm long **E. elegans**
 Juvenile leaves 6–14 mm wide; fruits 4–7 mm long **E. crebra**
- 20 Adult leaves bright green, quite glossy; juvenile leaves subsessile **E. granitica**
 Adult leaves blue-grey to green but not glossy; juvenile leaves distinctly petiolate 21
- 21 Operculum hemispherical to ellipsoid-truncate, apex obtuse 22
 Operculum conical, apex acute 23
- 22 Buds and branchlets usually pruinose; operculum hemispherical **E. atrata**
 Buds and branchlets never pruinose; operculum ellipsoid-truncate **E. ophitica**
- 23 Fruits typically ellipsoid-truncate; adult leaves 10–18 mm wide **E. whitei**
 Fruits cupular to obconical; adult leaves 18–30 mm wide **E. siderophloia**

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